Small Business Innovation Research/Small Business Tech Transfer

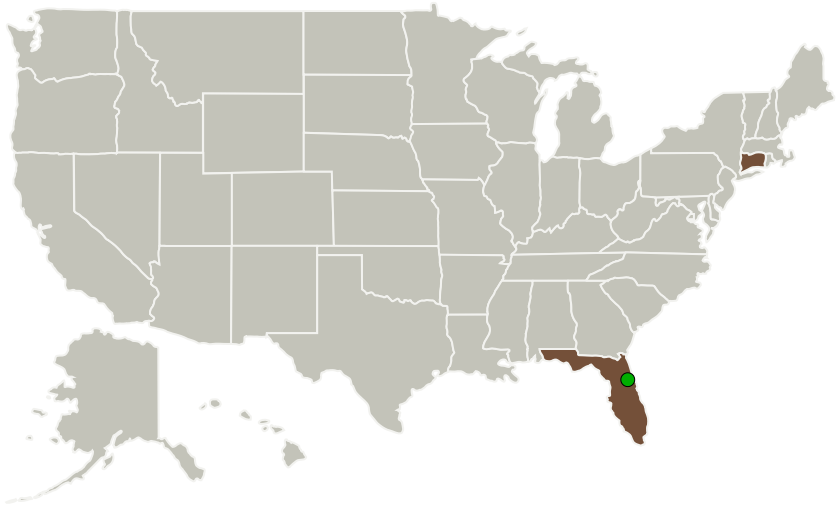
EMG System for Production of Methane From Carbon Dioxide, Phase I

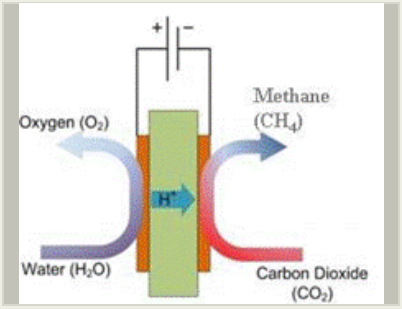
Completed Technology Project (2013 - 2013)

Project Introduction

Sustainable Innovations, LLC, is developing an Electrochemical Methane Generator (EMG), which comprises a novel method of converting CO2 and H2O to hydrocarbon fuels (such as methane) and O2. When powered by a renewable energy source, such as solar or wind power, it can provide a method for producing high quality fuels in a distributed fashion. This is accomplished by harvesting CO2 from the atmosphere and processing it electrochemically to release methane fuel and water. Sustainable Innovations' EMG technology has the potential to lead to a global sustainable energy infrastructure and could also play a pivotal role in achieving both the energy and the life support needs of extraterrestrial bases. For example, the Martian atmosphere, which is predominately CO2, can be directly used as a feedstock for the production of both fuel and water. The water can then be recycled to produce breathing oxygen.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
Skyre Inc	Lead Organization	Industry Small Disadvantaged Business (SDB)	
Kennedy Space Center(KSC)	Supporting Organization	NASA Center	Kennedy Space Center, Florida

Primary U.S. Work Locations	
Connecticut	Florida

Project Transitions

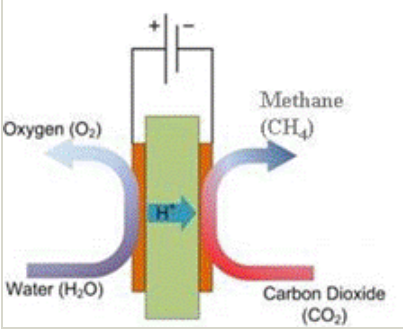
May 2013: Project Start

November 2013: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138128)*

Images



Project Image
EMG System for Production of Methane From Carbon Dioxide *(https://techport.nasa.gov/image/131112)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Skyre Inc

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

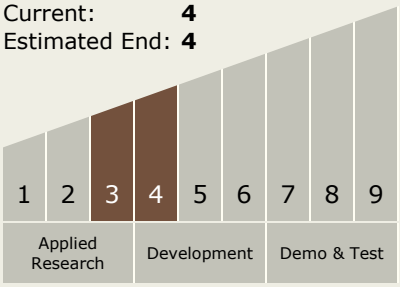
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Trent Molter

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX07 Exploration Destination Systems
  - TX07.1 In-Situ Resource Utilization
    - TX07.1.3 Resource Processing for Production of Mission Consumables

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System